

A1
contd.

5 51 comprises a silicon conductive layer 56 used as a bottom electrode of the anti-fuse 51, a dielectric layer 60 set on the silicon conductive layer 56, an inter dielectric layer 62 set either on the dielectric layer 60 (Fig.3 and Fig.6) or between the dielectric layer 60 and the silicon conductive layer 56 (Fig.4 and Fig.5), and a metal conductive layer 66 covering the surfaces of the inter dielectric layer 62 and dielectric layer 60, the metal conductive layer 66 functioning as a top electrode of the anti-fuse 51. In addition, the anti-fuse structure 51 can also uses a diffusion area of the silicon substrate 52 as the bottom electrode, and in this case, the isolation layer 54 and the silicon conductive layer 56 shown in Fig.3 and Fig.4 can be omitted from the structure of the anti-fuse.

A2

In the claims:

- 20 1. (Once amended) An anti-fuse structure having low on-state resistance and low off-state leakage, the anti-fuse structure being set on an isolation layer of a substrate, the structure comprising:
a bottom electrode composed of a silicon conductive layer set in the isolation layer, the silicon conductive layer protruding the surface of the isolation layer;
a dielectric layer set on the top surface of the silicon conductive layer; and
a top electrode composed of a metal conductive layer set on the surface of the isolation layer and covering the surface of the dielectric layer.
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R3
6. (Once amended) The structure of claim 1 wherein the silicon conductive layer is selected from the group consisting of doped polysilicon, doped amorphous silicon and silicide.

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Claim 10 is cancelled.

11. (Once amended) An anti-fuse structure, the structure comprising:

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10 a bottom electrode composed of a silicon conductive layer;
a dielectric layer set on the surface of the silicon conductive layer; and
15 a top electrode composed of a metal conductive layer covering the surface of the dielectric layer.

A5
16. (Once amended) The structure of claim 11 wherein the silicon conductive layer is selected from the group consisting of doped polysilicon, doped amorphous silicon and silicide.

Claim 20 is cancelled.